10 STANDARD FIRE ORDERS

Slice this page into individual elements, one set per table group.

F FIGHT FIRE AGGRESSIVELY BUT PROVIDE FOR SAFETY FIRST.

I INITIATE ALL ACTION BASED ON CURRENT AND EXPECTED FIRE BEHAVIOR.

R RECOGNIZE CURRENT WEATHER CONDITIONS AND OBTAIN FORECASTS.

E ENSURE INSTRUCTIONS ARE GIVEN AND UNDERSTOOD.

O OBTAIN CURRENT INFORMATION ON FIRE STATUS.

R REMAIN IN COMMUNICATON WITH CREW MEMBERS, YOUR SUPERVISOR, AND ADJOING FORCES.

D DETERMINE SAFETY ZONES AND ESCAPE ROUTES.

E ESTABLISH LOOKOUTS IN POTENTIALLY HAZARDOUS SITUATIONS.

R RETAIN CONTROL AT ALL TIMES.

S STAY ALERT, KEEP CALM, THINK CLEARLY, ACT DECISIVELY.

"WATCH OUT SITUATIONS"

Slice this page into individual elements, one set per table group.

_____ 1. FIRE NOT SCOUTED AND SIZED UP

_____ 2. IN COUNTRY NOT SEEN IN DAYLIGHT

_____ 3. SAFETY ZONES AND ESCAPE ROUTES NOT IDENTIFIED.

_____ 4. UNFAMILIAR WITH WEATHER AND LOCAL FACTORS INFLUENCING FIRE BEHAVIOR.

_____ 5. UNINFORMED ON STRATEGY, TACTICS AND HAZARDS.

_____ 6. INSTRUCTIONS AND ASSIGNMENTS NOT CLEAR.

_____ 7. NO COMMUNICATION LINK WITH CREW MEMBERS/ SUPERVISOR.

_____ 8. CONSTRUCTING FIRELINE WITHOUT SAFE ANCHOR POINT.

_____ 9. BUILDING FIRELINE DOWNHILL WITH FIRE BELOW.

_____ 10. ATTEMPTING FRONATAL ASSAULT ON FIRE

_____ 11. UNBURNED FUEL BETWEEN YOU AND THE FIRE

_____ 12. CANNOT SEE MAIN FIRE, NOT IN CONTACT WITH SOMEONE WHO CAN

_____ 13. ON A HILLSIDE WHERE ROLLING MATERIAL CAN IGNITE FUEL BELOW

_____ 14. WEATHER IS GETTING HOTTER AND DIER

_____ 15. WIND INCREASES AND/OR CHANGES DIRECTIONS.

_____ 16. GETTING FREQUENT SPOT FIRES ACROSS THE LINE

_____17. TERRAIN AND FUELS MAKE ESCAPE TO SAFETY ZONES DIFFICULT

_____ 18. TAKING A NAP NEAR THE FIRELINE

Downhill/Indirect Line Construction Guidelines

Slice this page into individual elements, one set per table group.

- The decision is made by a competent firefighter after thorough scouting.

- Downhill line construction should not be attempted when fire is present directly below the proposed starting point.

- The fireline should not be in or adjacent to a chimney or chute that could burn out while crew is in vicinity.

- Communication is established between the crew working downhill and crews working toward them from below. When neither can adequately observe the fire, communications will be established between the crews, supervising overhead, and a lookout posted where the fire's behavior can be seen.

- The crew will be able to rapidly reach a zone of safety from any point along the line if the fire unexpectedly crosses below them.

- A downhill line should be securely anchored at the top. Avoid underslung line if at all practical.

- Line firing should be done as the line progresses, beginning from the anchor point at the top. The burned out area provides a continuous safety zone for the crew and reduces the likelihood of fire crossing the line.

COMMON DENOMINATORS OF FIRE BEHAVIOR ON TRAGEDY FIRES

Slice this page into individual elements, one set per table group.

- Most incidents happen on the smaller fires or on isolated portions of larger fires.

- Most fires are innocent in appearance before the "flare-ups" or "blow-ups." In some cases, tragedies occur in the mop-up stage.

- Flare-ups generally occur in deceptively light fuels.

- Fires run uphill surprisingly fast in chimneys, gullies, and on steep slopes.

- Some suppression tools, such as helicopters or air tankers, can adversely affect fire behavior. The blasts of air from low flying helicopters and air tankers have been known to cause flare-ups.

LOOKOUTS

The following elements from the Standard Orders, Situations that Shout Watch Out, Downhill/Indirect Line Construction Guidelines, and Common Denominators restate or mitigate LOOKOUTS as used in LCES.

COMMUNICATIONS

The following elements from the Standard Orders, Situations that Shout Watch Out, Downhill/Indirect Line Construction Guidelines, and Common Denominators restate or mitigate COMMUNICATIONS as used in LCES.

ESCAPE ROUTES

The following elements from the Standard Orders, Situations that Shout Watch Out, Downhill/Indirect Line Construction Guidelines, and Common Denominators restate or mitigate ESCAPE ROUTES as used in LCES.

SAFETY ZONES

The following elements from the Standard Orders, Situations that Shout Watch Out, Downhill/Indirect Line Construction Guidelines, and Common Denominators restate or mitigate SAFETY ZONES as used in LCES.

OTHER

The following elements restate elements from the Standard Orders, Situations that Shout Watch Out, Downhill/Indirect Line Construction Guidelines, and Common Denominators, do not fit well into Lookouts, Communications, Escape Routes, and Safety Zones.

LOOKOUTS

THE FOLLOWING LISTS THE DUTIES, RESPONSIBILITIES, TECHNIQUES, PRECAUTIONS AND DESIRABLE EQUIPMENT FOR AN EFFECTIVE LCES LOOKOUT.

COMMUNICATIONS

THE FOLLOWING LISTS IMPORTANT CONSIDERATIONS FOR EFFECTIVE COMMUNICATIONS IN THE LCES CONTEXT.

ESCAPE ROUTES

THE FOLLOWING LISTS IMPORTANT FACTORS TO CONSIDER WHEN PROVIDING QUALITY ESCAPE ROUTES.

SAFETY ZONES

THE FOLLOWING LISTS IMPORTANT FACTORS TO CONSIDER WHEN EVALUATING A POSSIBLE SAFETY ZONE.

DIVISION ASSIGNMENT LIST	1. Branch	2. Division/Group
3. Incident Name	4. Operational Period Date: Time:	

5. Operations Personnel

Operations Chief		Division/Group Supervisor	
Branch Director		Air Attack Supervisor No.	

6. Resources Assigned this Period

Strike Team/Task Force/ Resource Designator	Leader	Number Persons	Trans. Needed	Drop Off PT./Time	Pick Up PT./Time

7. Control Operations

8. Special Instructions

9. Division/Group Communication Summary

Function	Frequency	System	Channel	Function	Frequency	System	Channel
Command		King NIFC		Logistics		King NIFC	
Tactical Div/Group		King NIFC		Air to Ground		King NIFC	

Prepared by (Resource Unit Ldr.)	Approved by (Planning Sect. Ch.)	Date	Time

A Brief History of LCES and the Workshop

The developers of the LCES Workshop are believers in the 10 Standard Firefighting Orders, the 18 Situations that Shout Watch Out, the Downhill Indirect Line Construction Guidelines, and the Common Denominators of Tragedy Fires. The effort, creativity and sincerity leading to these programs is as dedicated, profound and important as any other factor leading us to LCES. The Workshop actually serves these by providing effective review, and a mental map improving access.

LCES was invented by Paul Gleason while Superintendent of the Zigzag Hotshot Crew. On June 26, 1990, during transition to a Type I Incident Management Team, the Dude Fire, on the Tonto National Forest made a spectacular and tragic run. The Perryville Type II Crew was burned over, and six people lost their lives. Paul Gleason, his crew, and other crews and overhead were farther up the same hill in a predesignated Safety Zone in the Bonita Creek subdivision. Such a horrific experience changed the firefighting habits of everyone involved, and prompted Paul to conceive and publish LCES. Paul tells us that by doing a good job with Lookouts, Communications, Escape Routes, and Safety Zones we are essentially accomplishing all the 10 Standard Firefighting Orders, and 18 Situations that Shout Watch Out.

Ted Putnam, an ex-smokejumper, Missoula Technology Development Center expert on flame resistant clothing, and veteran of too many fire entrapment investigations, is also moved into action. Referring to his PhD in Psychology, Ted brings to our attention aviation cockpit studies showing that sharp individuals can normally manage only five or six elements at a time, and when the situation becomes intense, we can only focus on one or two. Ted also organized the pivotal Human Factors Workshop in Missoula, Montana in 1995. Many of the important concepts presented in the published findings are woven into the LCES Workshop.

Like many firefighters, the author of the LCES Workshop was also thinking of the complicated and "inaccessible" nature of the amassed Orders, Situations, Guidelines, and Denominators. The deaths of friends and coworkers on South Canyon in 1994 impelled a self evaluation and finally a deep commitment to LCES and Firefighting safety. Mere lip service to the rules was over. The fire season of 1995 provided opportunities to test Gleason's theory, and as a smokejumper, Type 3 Incident Commander and Safety Officer, held himself and others to a very literal and demanding commitment to LCES.

Notice the Standard Orders say "*Post a Lookout when Necessary*." LCES has shown we can have a lookout at all times, and the *quality of the lookout* is defined by *the time it takes* to get down the Escape Route to the Safety Zone.

Still, when wondering why, as a community, we were doing such a poor job with Lookouts, and Safety Zones, the thought dawned "We have no *standards*, *no training*, of what a quality lookout is. We have no *slide or video library* of quality Safety Zones to aid in our studies. These ideas point to the fact that our actual *commitment* to these safety cornerstones was weak. Instead of creating and publishing a long list of what a good lookout should be, why not turn the vast experience amongst our crews and firefighters, and empower people to be creative and design their own definitions and operating procedures. Hence the contract concept in Unit II.

To set the stage for this consensus process, Unit I tests Gleason's theory. Each participant discusses and identifies which of the L, C, E, or S categories best house each Order, Situation, Guideline, or Denominator. An unexpected compliment comes from many students: "Unit I has been the best review of the Orders and Situations to date.

The ulitmate goal of the LCES Workshop is to move the entire firefighting community one solid, indelible step. Let's achieve a point where all firefighters are so familiar with L, C, E, and S, and their use so ingrained, that any time we find ourselves working without them, we will get very nervous, feel very comfortable speaking up, make the fix, and practice only success.

The following lists are "School Book" solutions to Unit 2. Most likely groups will have most of these items, and probably a few more. This list will likely be used by instructors to provide prompts in the event key points are missed.

Lookouts

Individuals chose for this assignment are to be alert, thinking clearly, and knowledge-able. they must be good communicators and have good command of the radio system (frequency management).

Lookout knows where Escape Routes/Safety Zones are in relation to crew safety.

Achieves a view of the fire scene.

Monitors the fire and fire behavior.

Maintains communications with everyone in his/her area. This needs to be an active process.

Receives briefing on strategy and tactics.

Accounts for everyone's location, including small groups and individuals. The use of signal mirrors (headlamps at night) is encouraged.

Monitors weather and tracks weather trends.

Anticipates and thinks ahead, provides an overview on progress and the completeness of monitored communications.

Provides communications link to the outside world.

May be asked to handle logistics for remote operations.

Uses a lookout checklist compiled from this course. Plastic card?

Maintains a supply of extra batteries.

Keeps in mind the limits of their view, and informs firefighters when they are moving out of that area.

Stays in position until replaced, or the hazard is otherwise mitigated, or ordered out by supervisor. It is important that everyone counting on you as a lookout knows of any break in your service.

Establishes their own LCES plan, and knows how they fit into the chain of command, i.e., where their communicaitons link is.

The lookout is not always an individual perched on an adjacent ridge, nor will the person looking out be able to see the entire scene. A Crew Boss or IC may serve as a lookout by being heads up (as opposed to digging), and by staying mobile.

Communications

"I ought to have known. My advisors ought to have known and I ought to have been told and I ought to have asked." Winston Churchill, WWII.

People associated with South Canyon didn't know a lot of things they should have known. This raises at least three questions: why weren't they told? why didn't they ask? and why didn't they tell what they knew? They may not have been told because others thought the information would have no effect, was not desired, or would not be passed on. they may not have asked because they thought they had all the answers or wouldn't get them anyway. And they may not have passed on information because they assumed it would not receive a hearing. If any of these possibilities are true, and if people also believe that no news is good news, then wildland firefighting is a thousand administrative accidents waiting to happen. Widck, Human Factors Workshop, 1995.

Fire is not the problem. The problems are the alertness, trust, respect, candor, and "the will to communicate." Allison, Human Factors Workshop, 1995.

Pass on all pertinent information. Free flow of information is good management practice, gets things done, and saves lives. If people fail to pass along information, fail to listen attentively, and fail to elicit information actively, that's bad management and unsafe management.

Any glitch in communicaiton, whether a radio problem, or an individual's willingness to communicate, should have us questioning our safety.

Listening is the biggest part of effective communications.

Use the LADDER model (02-17-LCES-VG) for effective listening skills.

Non-verbal clues are critical for accurate communicaitons.

Items that must be communicated:

-Known safety concerns
-LCES
-Topography
-Strategy and tactics
-Duration of assignment
-Radio frequencies, and how to contact everyone
-Contingency planning such as medivac, etc.
-Fire behavior
-Weather
-Incident organizations
-Job assignments (duties)
-Political considerations
-Gut feelings about the situation, the assignment, or individuals

Communications are accomplished but not limited to:

1. Briefings. Dispatch briefings, morning briefings, and initial line briefings at assignment location.

2. On going radio messages to supervisors, subordinates, adjacent forces and air resources.

3. Lookouts.

Briefings need to be given and received so that everyone gets all the information they need to accomplish their job safely. They should be direct, concise and informative.

If you don't receive a good briefing, ask for one, insist that you get it, and ask questions about any item that's not clear.

As the situation develops, additional briefings may be necessary.

According to Weick, a quality briefing will include the following:
-Here's what I think we face.
-Here's what I think we should do.
-Here's why.
-Here's what we should keep our eye on (this should include an LCES plan).
-Now, talk to me.

Radio transmissions should be thought out and concise.

Do let allow overwhelming duties and communications distract you from accurately monitoring the big picture, when incremental changes add up to an usafe situation.

Escape Routes

Escape routes are to be identified and announced as crew moves into and through an area.

Alternative escape routes are encouraged.

Barriers to clean escapes are to be cleared or otherwise mitigated. Barriers encountered in the past include bluffs, brush, downfall, steep slopes, etc.

An individual will be assigned to walk out the escape route, identify barriers and get a realistic idea of the time needed to reach a safety area.

Timing. Some people think it should be LCEST.

> New escape routes need to be identifed as people move through new areas. If the black at the anchor point of the fire is the original safety area, the time required to reach that safety area will increase as the line is extended.
>
> In wildland firefighting, LCES is designed to provide a wide safety margin. A "wide margin" is an alternative to the image of the mad dash to the safety zone. A trained eye will recognize the critical factors such as changes in air mass, increased fire behavior, and inherently hazardous situations and recognize the fire "posturing" to make a run. Properly used, LCES should allow us to walk, not run.
>
> Set trigger points and thresholds to avoid the trap of incremental changes.
>
> 90% of the time, the fireline is the Escape Route.

Safety Zones

Survival zones are not safety zones. The use of a fire shelter should not be necessary in a safety zone.

Safety zones will be identified and discussed before work begins.

"Keep One Foot in the Black" or "Bring the Black with You" is our first and most common safety practice.

Take advantage of the aerial overview whenever possible. Make sketches or mark maps in the aircraft. Consider the use of Poloroid photography.

Safety zones can be created by burning out light fuels, or irrigation; however, the time these actions require must be factored into the LCES formula.

Firelines located to include open meadows will eliminate the need of some last minute firing.

When a blackened area is used as a safety zone, the crown must also be absent. Be heads up for falling trees that have burned, rolling rocks, and re-burnable brush.

New safety zones must be scouted and announced as people move into new areas.

Help less experienced people scrutinize safety zones. Help build the slide library with examples of good and poor safety zones.

90% of the time the black is the safety zone. It must be cool enough to stand in, big enough to eliminate radiant and convective heat, and have no re-burn potential.

Each individual must be constantly engaged in the LCES process evaluating and re-evaluating as locations and situations change.

GILA NATIONAL FOREST

LCES performance standards for Gila National Forest firefighters as defined during the May 1996 Guard School.

LOOKOUTS

-LOOKOUTS MUST:

Have weather and fire behavior knowledge and experience.
Notice and report changes in weather and fire behavior.
Monitor radio traffic for:
- Air support.
- Adjoining crews or divisions communications.
- Communications relay.
- Completeness of monitored conversations.

Have own safety zones and escape routes.
Become familiar with surrounding topography.
Identify safety zones and escape routes.
Know location of firelines and anchor point.
Identify and report natural barriers.
Be a calm and capable communicator familiar with radio frequencies.
Be in good physical condition.
Monitor smoke color and direction.
Monitor fire.
Know location of crews and their proximity to safety zones.

STAY CALM IN EXTREME SITUATIONS AND BE ABLE TO COMMUNICATE WELL.

Tools:
Flashlight
Binoculars
Radios
Fresh batteries
Compass
Map
Notebook
Signal mirror
Flagging
Weather kit
PPE

COMMUNICATIONS:

A GOOD BRIEFING INCLUDES:

-Here's what I think we face.
-Here's what I think we should do.
-Here's why.
-Here's what we should keep our eye on (this should include an LCES plan).
-Now, talk to me.

EQUIPMENT:
Radios
Maps
Fresh Batteries
Cell Phone
Hand Signals
Flagging
GPS unit

GUIDELINES FOR EFFECTIVE COMMUNICATIONS:
Eliminate assumptions.
Ask questions.
Find out everything you need to know.
Relay updated information as soon as possible.
Stay in close proximity of communications with your crew.
Know all radio frequencies on fire and with other crews.
Speak clearly and concisely-- think before talking.
Relay information, ask questions, stay aware of your situation.
Practice effective listening skills.
Pay close attention to verbal and NON-verbal communications.

ESCAPE ROUTES

Make sure everyone knows their escape routes.
Clear shortest path to the safety zone.
Walk out the escape route and note the time required.
Establish alternative escape routes.
Scout area.
Consider fuels, weather, topography, fire behavior and spotting potential when evaluating an escape route.
Make routes known to adjoining forces and lookouts.
Communicate, re-evaluate, and reiterate.
You may need to change escape routes as weather, fire locaton or crew location changes.

EACH PERSON MUST TAKE PERSONAL RESPONSIBILITY, UTILIZE LOOKOUTS, AIR OBSERVERS.

EQUIPMENT:

Flagging
Notebook Paper
Compass
Chainswas
Hand Tools
Radios
Heavy Equipment (Dozers)

SAFETY ZONES

Areas that all crew members can reach quickly.
Practical site needing little clearing or improvement.
Use natural barriers if available.
DO NOT CONFUSE WITH DEPLOYMENT ZONE.
Pick an area without re-burn potential.
Mark safety zone locations.
Note and use aerial view to find good safety zones.
Re-evaluate safety zone frequently.

TOOLS:

PPE
Chainsaws
Lookouts, ground and aerial
Flagging
Radios
Fusees or other firing devices
Sprinkler system
Heavy equipment (dozers)
Camera (To record good and poor examples of safety zones for the slide library).

f

MISSOULA SMOKEJUMPERS

LCES PERFORMANCE STANDARDS

LOOKOUTS

ATTITUDE

A LOOKOUT SHOULD BE

- An alert, self-motivated person
- Knowledgeable about fire and fuel type
- A good lookout keeps thinking, keeps calm

LOCATION

PICK A GOOD VANTAGE POINT

- Identify fire related situations requiring special attention
- Monitor other environmental hazards
- Remember, you're responsible for LCES for yourself.

EQUIPMENT

TAKE THE NECESSARY EQUIPMENT

- PPE, compass, binoculars (if available), food and water.
- Radio, extra batteries
- Shift plan
  - -Know the big picture and keep it updated.
- Belt Weather Kit
  - -Take weather observations, SHARE THEM
- HAVE ALL THE EQUIPMENT YOU NEED AND KNOW HOW TO USE IT.

COMMUNICATION

GIVE GOOD BRIEFINGS

COVER EVERYTHING IN A SENSIBLE, STRAIGHTFORWARD MANNER

- Here's what I think we face
- Here's what I think we should do
- Here's why/when/where
- Here's what we should keep an eye on
- Now talk to me

HAZARD IDENTIFICATION

- Keep crews informed
- Spot weather forecasts
- Be pro-active, anticipate changes in weather and fire behavior

MAINTAIN CLEAR AND CONCISE COMMUNICATION.

KEEP OPEN LINES OF COMMUNICAITON WITH ALL RESOURCES YOU'RE RESPONSIBLE FOR OR WORKING WITH.

- ENCOURAGE INTER AND INTRA CREW COMMUNICATION
  - Up and down hierarchy
  - Voice opinions, everyone, not just supervisors

CHECK-IN SCHEDULE SHOULD BE SET UP BEFORE HAND.
HAVE SUPERVISORS UTILIZE THE 'SITUATION CHECK' MECHANISM TO RE-ASSESS WHETHER LCES IS COVERED.